

Hardy Fern Foundation NEWSLETTER



President's Report

Sue Olsen

As we prepare for the coming year it is time to reflect and report on the 1991 activities of the Hardy Fern Foundation.

In spite of an exceptionally severe winter the ferns from our initial plantings have done remarkably well (see related article). Those that are struggling have been or will be moved to more promising sites. Work parties in the spring and fall added more species and varieties to the initial collection while yet others are in varying stages of propagation including an assortment from spore provided by an eastern European pteridologist. In addition, we are particularly pleased to report that our scientific advisor, Barbara Hoshizaki, has made contact with colleagues in both China and Japan and that spore from these sources should be forthcoming by the summer of 1992. While it will be some time before we have mature progeny the potential for diversity is very exciting indeed. Closer to home The New England Wildflower Society's Garden in the Woods contributed a plant of the very rare *Adiantum pedatum* forma Billingsae to the Foundation.

An informal group of board members and friends travelled to Portland this past spring to visit two lovely gardens of Portland members, John Platte and Dr.

John Thompson. Dr. Thompson is also a propagator and shared both his knowledge and some rare plants which are being grown on for future planting. We were also interested to learn from him that there is now a slow release fertilizer Osmocote Plant Food for Potting Mixes 17-6-10 plus minors that can safely be used in the greenhouse. (Do abide by the cautions on the label regarding application strength for ferns, however.) Judging by the fine appearance of Dr. Thompson's ferns, it can indeed be recommended.

The spore exchange and plant sales were well received and we were pleased by the degree of participation in our inaugural efforts. The 1992 spore list will be mailed to all members in good standing early in the year. A special publication on propagation by Barbara Hoshizaki will accompany the spore list. As all exchanges are dependent on member participation, we encourage everyone to send in spore...even one or two packets will contribute to diversity and interest.

We are pleased to announce that Strybing Arboretum of San Francisco, California State University at Sacramento, Denver Botanic Gardens and Fernwood of Niles, MI will be joining us as satellite gardens. While San Francisco and Sacramento are geographically rather close, their variation in climatic characteristics should produce some valuable data. We hope to

begin distributing plants to the first three gardens in the near future. Fernwood whom many fern enthusiasts know as the public garden of the late Mrs. Kay Boydston will become active several years from now. We expect our next satellites to be east coast gardens.

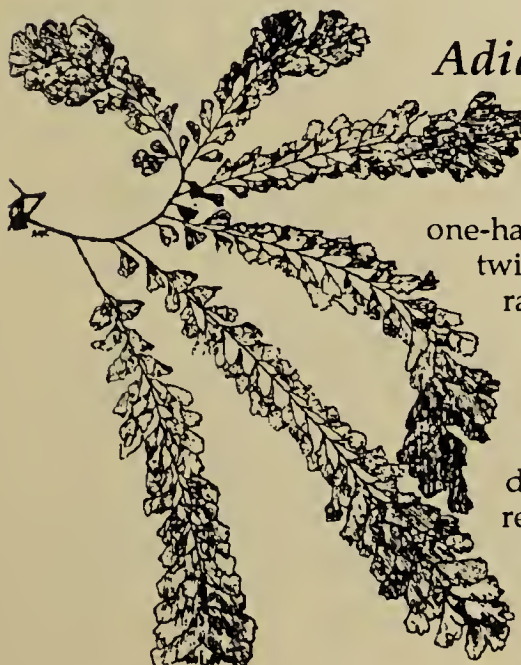
For fun and education the Hardy Fern Foundation is sponsoring a field trip for members in September of 1992. Paul Martin Brown, an outstanding educator and field botanist, will lead us to select fern habitats in upper state New York and New England (see announcement). It promises to be a very exciting foray.

In this issue we have the final installment of James Horrock's Utah successes and failures along with a new feature on ferns in their type locality.

Please, please note that we have a new address:

Hardy Fern Foundation
P.O. Box 166
Medina WA 98039-0166

In closing I thank all of you who have been so helpful and supportive and wish you a healthy, prosperous and ferny 1992 complete with a cooperative weatherman!



Adiantum pedatum L. forma Billingsae

An odd, but beautiful, variation of the maidenhair (*Adiantum pedatum* L.) was found on Mt. Tom, Woodstock, Vermont, in August, 1928. The stipes and rachises are quite red, or reddish-brown in color—not at all the purple-black of the common form. The pinnules for one-half to two-thirds of the length of each rachis are about normal in size, but are folded over, or twisted, in such a manner as to appear at first glance very small and to be set well away from the rachis; those of the outer portions of the rachis are somewhat larger than usual and grow flat, but so crowded as to overlap each other and entirely conceal the rachis. Six plants were found in a colony of normal plants, and they were noticeable not only for the differences in the size and shape of the pinnules, but for the marked difference in their color, which was a peculiar bluish-green making them appear glaucous. This color, however, is not so conspicuous in the dried fronds. At first it was thought all these odd fronds were sterile, but a close examination revealed that a few pinnules on one frond bore one sorus each. As the plants were found on the Billings estate, and as Miss Billings is greatly interested in ferns, it is proposed to designate them as *Adiantum pedatum* L. forma Billingsae, N. F. Shaded bank, North Ridge Road, Mt. Tom, Woodstock, Vermont. — Elsie M. Kittredge. *From the American Fern Journal, Vol. 19.*

Fern Cultivation in Northern Utah, Part 3

by James R. Horrocks

Phegopteris decursive-pinnata - Made it through two winters here but finally died out. Humidity most likely a factor.

Phegopteris hexagonoptera - Grew for two seasons and then succumbed. Its need for higher humidity certainly a problem. An acid soil was probably also needed.

Phyllitis scolopendrium, the Harts-tongue fern has thrived here. I have a clump over seven years old.

Polypodium - These ferns seem to need more humidity than is available here. I

fronds through much of the growing season. I have grown this since 1984.

Polystichum X illyricum (hybrid cross between *P. aculeatum* and *P. lonchitis*) This has done quite well here through two seasons.

Polystichum lonchitis - This fern is another alpine plant native in Utah but under cultivation at lower altitudes it has done miserably.

Polystichum makinoi - One of the most beautiful *Polystichums* in my estimation. It has done rather well here over several years.

Polystichum munitum - After numerous attempts, this fern is best left in the acid soils and humid climes of the Pacific Northwest. I had a sizeable clump which lasted several years but gradually died out. Other attempts to grow it have all failed. A local nursery has grown a clump of several of these inside a large greenhouse, hence humidity is probably the greatest factor.

Polystichum neo-lobatum - A very attractive fern which has done very well here over several

seasons. One of my personal favorites.

Polystichum polyblepharum - Young plants of this species have never wintered well here, but an older plant has survived and done beautifully. Somewhat similar to *P. makinoi*, but glossier. Several local nurseries have offered this as an outdoor plant. I have found nurseries here to be woefully ignorant of fern culture and not interested in any experienced advice.

Polystichum retroso-paleaceum - Has done very well here with the companionship of large rocks. It comes up very early in the spring, hence needing frequent protection from frosts. It is somewhat similar to *P. Braunii*.

Polystichum rigens - This fern has been of somewhat cautious growth here and is a target for slugs and snails, possibly because of its peculiar odor which has been described as garlic-like. I personally find that it smells more like Crown Imperials (*Fritillaria*).

Polystichum scopulimum - Native to Utah but only in alpine areas. I have never attempted its cultivation.

Polystichum setiferum - Strangely enough,

this species eventually died out in my garden. I have attempted it several times with the same result. Two varieties of this species have done fairly well here: *P. setiferum* Rotundatum cristatum and *P. setiferum* 'Pulcherrimum.' *P. setiferum* 'Plumoso-divisilobum' has done marginally well.

Polystichum squarrosus - A Himalayan species, this one shows considerable promise as I have had two specimens which have adapted quite well in the garden. They have made it through one winter unprotected. Very similar to *P. neo-lobatum*.

Polystichum tripterum - I have a single specimen now growing in my cold frame. It has never done well in the outdoor garden. The slugs won't leave it alone and I very nearly lost it last year. It seems to like more humidity than is available in the garden.

Polystichum tsus-simense - Winter hardy here but of somewhat subdued growth. It seems to be at its best nestled among rocks. It has not "flourished" as I had hoped it would.

Pteridium aquilinum - Will certainly grow in any garden, even taking some sun here if given adequate moisture. I have always found it difficult to establish.

Pteris - Two species, *P. cretica* and *P. multifida* have been attempted here. Slugs eat them up and they have always winter-killed.

Thelypteris or *Parathelypteris noveboracensis* - Succeeded for two years and then mysteriously vanished. I would like to try it again.

Woodsia - There are three species in Utah, two of which occur in the north. They are *W. oregana* and *W. scopulina*. I tried one of these some years ago (I'm not sure which) but it did not seem to do very well and I have not attempted any natives since. I am presently experimenting with *W. polystichoides* from Japan.

Woodwardia - Two species have been tried out in my garden, *W. fimbriata*, the West coast giant and *W. radicans* from Europe. Neither did well at all, being very temperamental.

In the photo above, left, Jim Horrocks is in the company of *Polystichum deltodon*, *Adiantum venustum* and *Dryopteris cycadina*.



have attempted *P. virginianum* but without much luck. *P. hesperium* is native to Utah, although I have never seen it in the wild and certainly not in cultivation here.

Polystichum acrostichoides - this fern, attempted several times by myself as well as some other gardeners in this area, has never done very well here. It seems to do better in rather sterile soils, garden soil being too rich, hence the tendency to "sprawl". Mine always died out.

Polystichum aculeatum - This fern has done quite well here, seemingly because it likes some alkalinity.

Polystichum Andersonii - I have always had appalling luck with the *Polystichums* of the Pacific Northwest. This one grew for two years and then died.

Polystichum Braunii - This species, I least expected to do well here, but I have had specimens for over twenty years. For some unexplainable reason, I have never been able to grow this one from spores. I have not even been able to grow prothalli.

Polystichum deltodon - A real gem and surprisingly hardy here, producing

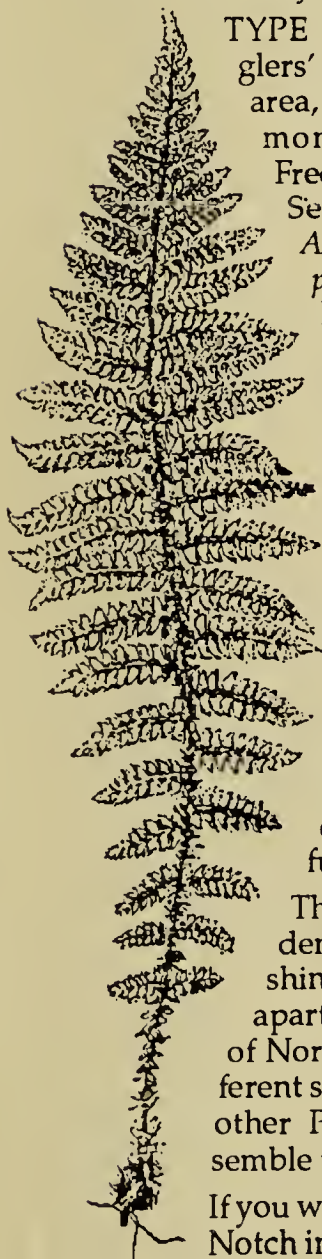
**Hardy Fern Foundation
Spore List is coming soon!
To receive yours, be sure your
dues are up to date.**

Ferns from the Type Locality

By Paul Martin Brown

When the specific locality where a species is first discovered and collected from is well documented it is known as the TYPE LOCALITY. Unfortunately not all species are equally as well documented, but for the majority that are, this information allows the enthusiast to search out the original physical spot and population that led to the naming of that species. In this series I will be treating a wide variety of ferns and fern allies and the type localities that still exist and can be visited today. All these sites I have been to. If members have requests for certain species to be treated please write and let the editor know and I will try to write them up. Some upcoming candidates include *Aspidotis carlotta-hallii*; *Asplenium vespertinum*; *Schizaea pusilla*; *Asplenium bradleyi*.

POLYSTICHUM BRAUNII
var **PURSHII** Braun's holly fern,
American variety



TYPE LOCALITY: Smugglers' Notch, Mt. Mansfield area, Lamoille County, Vermont. Discovered by Frederick Pursh, probably September, 1807, as *Aspidium aculeatum* var. *purshii* by Fernald in Rhodora 30:30, pl. 159, 1928.

Despite the nomenclatural confusion about this species, it remains one of the most attractive ferns of northern New England. Although its nearest relatives in the northeast are *P. acrostichoides*, Christmas fern, and *P. lonchitis*, holly fern, it could never be confused with either.

The deeply cut pinnules, dense bronzy chaff and shining fronds set it well apart. In the western areas of North America it is a different story as there are many other *Polystichums* that resemble this species.

If you were to visit Smugglers' Notch in Vermont and park at the little parking area at the top of the notch itself, almost any of the easily accessible rocky woodlands would yield many plants of Braun's holly fern. Also growing with it would be the widespread

Christmas fern and their rare hybrid *Polystichum x potteri*. I had the great pleasure of having the late Henry Potter point these out to me in 1975 and comment that although the two parents grow together frequently the hybrid was widely scattered and relatively rare.

It would be a botanist's dream if all type localities were quite as easy to get to as this one, and some are. Unfortunately many are not as well described and we can only hope to find the approximate spot. If you are exploring in Northern Vermont be sure to pay homage to the exquisite species in its original home.

DIRECTIONS: From the center of Stowe, Vermont, at the junction of VT 100 and 107, take route 107 north following signs for Mt. Mansfield. Pass the auto road up the mountain and continue north towards Jeffersonville. You will soon enter the Smugglers' Notch area. Watch for the parking lot at the very height of land. It only holds a few cars. Park there and explore the woods. The best spot is just downhill to the south on the east side of the road. There is a gentle ravine there and many plants of Braun's holly fern as well as Potter's holly fern. P.S. Be sure to look for both *Woodsia glabella*, smooth woodsia, and *Asplenium trichomanes-ramosum*, green spleenwort, on the mossy boulders!

Fall Fern Foray - 10 day tour through Northeast US September 10-19, 1992

The northeastern United States can boast of nearly 100 ferns and fern allies. This trip is designed to view the majority in the field. We start just outside of Rochester, N.Y. to see *Dryopteris celsa*, log fern and its many hybrids. This is a northern disjunct locality for this species. We will continue east in New York to see massive numbers of *Asplenium montanum*, mountain spleenwort, *Phyllitis scolopendrium* var. *americanum*, American hart's-tongue, and many of the lime-loving pteridophytes that grow near the hart's tongue. Bartholomew's Cobble in southwestern MA has long been a mecca for fern enthusiasts and we will spend half a day there before driving north to Vermont.

Some of the northern highlights include *Asplenium ruta-muraria*, wall rue, *Dryopteris filix-mas*, male fern, *Polystichum braunii* var. *purshii*, American Braun's holly, and *Woodsia glabella*, smooth woodsia. A brief stop in Plymouth Union, VT, will reveal *Asplenium trichomanes-ramosum*, green spleenwort, in its southern locale. We then head for northern Vermont and New Hampshire to visit Willoughby Lake and Mt. Washington, areas abounding in many of the rare fern allies. Near the end of our trip we will spend a day near Amherst, MA, at the fabled Mt. Toby for large quantities

Thank you!

The Hardy Fern Foundation wishes to sincerely thank the following members who have contributed above and beyond the basic membership classifications. Your support sustains our existence.

Contributing:

Mary C. Muller
Mrs. Thomas Anderson

Supporting:

Mr. and Mrs. Charles Hyde

Endowment:

The Boeing Company
Mrs. Joseph Carman III
Michael Concannon
Sylvia Duryee
Steven Gilbert
Thomas Gillies
Catherine Hayes
William Horder
Mrs. Charles Hyde
Mr. & Mrs. Sterling Leisz
Marshall Majors
Harry & Sue Olsen
William Plummer
Reba Roorback
Jinny Seitz
David Strommen
Constance Twardowski
Warren H. & Florence Wagner

of *Dryopteris goldiana*, Goldie's woodfern, and the type locality for *Trichomanes* sp., the minute little filmy fern known only in the gametophyte stage. Our last days will be in the Boston area with a visit to Garden in the Woods, in Framingham, and a special spot in the Blue Hills for evergreen *Botrychiums*. Other species highlights will include *Polystichum x potteri*, Potter's holly fern, *Lygodium palmatum*, climbing fern, and nearly all the lycopods of New England.

Time for non-plant activities and historical sites, especially in the Boston area will be available. Cost includes all meals, transportation from Rochester, NY, to Boston, MA, admissions and lodging plus a \$50 donation to the Hardy Fern Foundation. Airfare is not included. COST: 8 days - \$1375, 10 Days - \$1575, 6 days - \$1175 (excludes VT and NH).

Please enquire for a more detailed itinerary and plant list to Paul Martin Brown, 15 Dresden St., Jamaica Plain, MA, 02130-4407.

Deposit of \$300 per person due by February 15, 1992 Second payment of \$500 per person by May 1, 1992 Balance by July 1, 1992 Initial deposit refundable if you cancel before May 1, 1992. Any cancellations after May 1, 1992, subject to actual costs incurred.

Happy Birthday, B.P.S. - Part 1

To paraphrase John Mickel (N.Y. Botanical Garden,) it was worth attending the Centenary Symposium and Tour of the B.P.S. (British Pteridological Society) in England July 7-14, 1991, just to hear octogenarian member Jimmy Dyce, say "fahrns" in his rich Scottish brogue. But "fahrns" or ferns, the four days of meetings at Imperial College in London covered them "ferntastically". An eclectic group of growers, conservationists and scientists presented papers to over 90 participants from around the world. In the first sessions speakers introduced us to the great diversity of ferns suitable for cultivation from varied international habitats. Ferns now in cultivation in America were reviewed by John Mickel and the vast potential for new fern introductions was emphasized by Barbara Joe Hoshizaki.

Chris Haufler, Eric Rabe and Charles Werth wove an intriguing tale of gene pools, breeding programs and polyploid analysis to suggest how the new tools of molecular biology can offer insights into the intimate sex lives of fern gametophytes and the evolution of apparent homogeneity in sporophyte populations. Elizabeth Sheffield concentrated on the potential for large-scale fern propagation thru apogamy (the spontaneous production of sporophytes from bits of gametophyte tissue - without gametic union) and apospory (the generation of gametophytes from sporophyte tissues, e.g. leaves, without spore production.) Over thirty percent of *Pteris* species can reproduce apogamously and *Athyrium filix-femina* var. *clarissima* is naturally aposporous.

In addition to these perceptive papers, an excellent set of submitted posters displayed techniques of fern photography, isozyme analysis of hybrids, novel approaches to gametophyte culture and the conservation of ferns in Mexico. There was a magnificent set of drawings of the "ant ferns". These are members of the genus *Lecanopteris*, which consists of thirteen species of tropical rain forest epiphytes. All of them share a remarkable anatomical adaptation - swollen, hollow, dead rhizomes in which interconnected cavities develop from the breakdown of water storage tissue present in the apical region. These galleries are home to specialized ants, which provide nutrients (organic debris, fecal matter) to their fern hosts and receive life-sustaining homes in return.

British interest in ferns is broad-based and dates back to Victorian times (mid-1800's to early 1920's) "Pteridomania"

spread throughout the land, fanned initially by the royal and upper classes, eager to acquire interesting specimens for their newly-designed Wardian cases - fancy, miniature, table-top greenhouses for the well-furnished parlor. Filled with blooming orchids and feathery-fronded ferns, these glass boxes were a status symbol of elegant home furnishing that soon spread, on a smaller scale, to the middle and lower classes. Peter Boyd, of the Museum of North Devon, gave a riveting talk on the history of ferns in Britain. He had slides of Wedgewood-style pottery, dinnerware, woodwork and other artifacts of the Victorian era, now preserved at the museum. All had fern designs (fronds, fiddleheads, even whole plants) in bas-relief, carving motifs, paintings and the like - very impressive and esthetic.

To satisfy an escalating demand for new ferns, Victorian collectors and botanists scoured the British countryside in search of new plants, often denuding huge areas of limestone cobbles, woodlands and rock outcrops, and bringing back occasional varieties of great horticultural importance. Soon, propagators were able to offer a growing market an impressive array of plumose, frizzled, undulate, sagittate, cristate and other sports of well known British species of *Dryopteris*, *Athyrium*, *Osmunda*, *Polystichum*, *Phyllitis* and *Polypodium*. Variations of the latter were discussed by Martin Rickard. Many of these amazing Victorian ferns are still available commercially and are planted in gardens all over the country. It is not known why so many mutations arose and survived among Britain's native flora - everything from natural radioactivity in the rocks to the moist, cool climate has been cited.

One of the four meeting days was spent at internationally famous Kew Gardens in the Richmond district, southwest of London. There was a morning paper session in which Wim Oudshoorn surveyed the bulb, flower and fern industries of Holland. Seventy-five percent of the world's cut flowers and most of our spring bulbs are produced in the Netherlands. In addition, the country is home to the famous Lemkis Fern Nursery. Robert Stamps introduced us to a relatively unknown, but major crop of Florida - Leather-Leaf Fern for the florist trade. *Rumohra adiantiformis* is grown under shade cloth around Pierson, Florida (the "Fern Capital" of the world,) and its long-lasting, leathery, mature leaves are harvested, packed and shipped all over the country for commercial use in floral arrangements.

A review of the history of fern growing at Kew Gardens by curator John Woodhams was followed by a tour of the

extensive propagating greenhouses, the tissue culture laboratories (where endangered species and hybrids are propagated *in vitro*), the humid Filmy Fern House, and the outdoor garden of hardy ferns from around the world. Then there was a box lunch on the green in front of the classically-styled Orangery - originally built as a plant house in 1761, now an elegant gift shop and restaurant. A sunny afternoon on one's own could be spent meandering over the square mile of formal, informal and rock gardens, visiting tiny gems in the alpine house, the "nosegay" plantings of herbs and aromatics in the Queen's Garden, the Palm House (dating from 1848) and many other special areas (Kew grows specimens of 10% of the world's flora).

Culminating a perfect day was a wine and cheese reception in the magnificent, new Princess of Wales greenhouse, a greeting by Ghilleen Prance, Director of Kew, and a private tour of the international collection of plants in this world class facility. The greenhouse was built in a tiered, sectional fashion to achieve the Kew concept of grouping plants in natural, ecologically-correct settings, rather than the old "plants-in-pots-on-tables" displays. Thus, insectivorous plants are in simulated bogs, cacti and other xerophytes are in a desert room, eye-catching tree ferns are in a tropical rain forest setting, etc.

Back at Imperial College we had a final chance to see a bit of London, including the many museums near the College. A poignant plaque on the heavily shell-damaged Victoria and Albert Museum reads, "The damage to these walls is the result of enemy bombing during the blitz of the Second World War 1939-1945 and is left as a memorial to the enduring values of this great museum in a time of conflict." To American civilians who were sheltered by an ocean's distance from direct experience with the unspeakable ravages of the war, it was an unsettling and somber sight. Evidence of Britain's long and complex history is well preserved all over London and visitors are wise to allow as much time as possible to absorb and admire its many treasures.

A banquet culminating the Symposium included a sumptuous British dinner, preceded by a toast to the Queen (interesting for Americans,) and followed by some reflective, often humorous remarks by Barry Thomas, President of the B.P.S. and Jimmy Dyce, member of longest standing and unofficial historian of the Society. Our British hosts were more than generous with their hospitality and their expertise. All attendees were impressed with their country and its "frondliness." Joan Eiger Gottlieb

The Hardy Ferns at the Rhododendron Species Foundation

Suzanne Hattery

The Hardy Fern Foundation is well on its way to establishing a comprehensive collection of ferns. In 1990, over 250 accessions were planted at the Rhododendron Species Foundation (RSF) and, in 1991, 11 more accessions were added. The majority of the collection is located in the lower study garden, however, ferns were placed around the pond and in the alpine area to provide a more suitable environment. The study garden is proving to be an ideal location for the ferns, many of which have adapted quite well to the soil composed primarily of decomposed sawdust. This location is a shaded woodland garden with majestic stands of native douglas fir, western hemlock, and red cedar. The RSF study garden is designed to display the taxonomic arrangement of the rhododendron species. The ferns are arranged by genus, complementing the rhododendron plantings. Within each genus, ferns are arranged by country of origin and habitat preference. This demonstration garden is effective for introducing the diversity of ferns to the novice and expert visitor. In the spring of 1991, the Hardy Fern Foundation adopted a comprehensive collection policy designed to guide the development and the management of the collection. This enables us to continue acquiring ferns and accepting donations under specific guidelines. To date, each fern accession is labeled with the common name, Latin name, accession number and family. The labeling process was accomplished by an RSF summer intern as part of her student project. Extremely cold weather in December of 1990 and very wet weather in the spring of 1991 subjected the ferns to their first test of survivability. Some species of ferns fared better than others. Although not a scientific study, I can report on the general conditions to date. The following list tells some of the species that are thriving in the study garden: *Athyrium otophorum*, *Adiantum* (all species and varieties), *Cyrtomium falcatum* x *caryotideum*, *Cyrtomium fortunei* var. *intermedium*, *Dryopteris filix-mas* 'Linearis polydactyla', *D. dilatata*, *D. dilatata* 'Recurvata', *D. affinis* 'Crispa', *D. wallichiana*, and *Polystichum tsus-simense*. Species such as *Dryopteris bissetiana* are doing very well after being moved this past spring, however, *Cryptogramma alpestris*, *C. cascadiensis*, and *Polystichum setiferum* 'Plumoso multilobum' need to be moved to a new location with better drainage. There are relatively few losses

to report but among them are *Cystopteris tennesseensis* and *Pellaea atropurpurea*. The ferns in the alpine garden, including *Cryptogramma acrostichoides*,

Polystichum dudleyi, and *Woodsia obtusa* are doing very well. The *Woodwardia areolata* and *Osmunda regalis* are also thriving in the pond area. The 1991 additions that have done especially well are the *Asplenium trichomanes* var. *incisum*, *Polystichum makinoi*, and *P. tsus-simense*, and of course our Washington natives, *Athyrium filix-femina*, *Blechnum spicant*, and *Polystichum munitum* are flourishing. Overall the collection looks great. We will continue to report on the status of the particular species and varieties as the collection develops.

Hardy Fern Foundation Collection 1990 Accessions Rhododendron Species Foundation

Adiantum aleuticum
Adiantum aleuticum (dwarf form)
Adiantum pedatum 'Japonicum'
Adiantum venustum
Adiantum viridimontanum
Arachniodes simplicior var. *major*
Asplenium trichomanes
Athyrium filix-femina var. *angustum*
Athyrium filix-femina 'Bornholmense'
Athyrium filix-femina 'Minutissimum'
Athyrium mesosorum
Athyrium niponicum
Athyrium niponicum var. *pictum*
Athyrium otophorum
Athyrium pycnocarpon
Athyrium thelypteroides
Athyrium vidalii
Blechnum niponicum
Blechnum penna-marina
Blechnum spicant
Blechnum spicant (Serratum group) 'North Wales'
Cryptogramma acrostichoides
Cryptogramma acrostichoides x *sitchensis*
Cryptogramma alpestris
Cryptogramma cascadiensis
Cryptogramma sitchensis
Cyrtomium falcatum x *caryotideum*
Cyrtomium fortunei var. *intermedium*
Cyrtomium macrophyllum
Cystopteris bulbifera
Cystopteris protrusa
Cystopteris tennesseensis
Dennstaedtia punctilobula
Dryopteris aemula
Dryopteris affinis 'Crispa'
Dryopteris championii
Dryopteris clintoniana x *goldiana*
Dryopteris cycadina
Dryopteris cystolepidota (*Dryopteris nipponensis*)
Dryopteris decipiens
Dryopteris dilatata
Dryopteris dilatata 'Lepidota cristata'
Dryopteris dilatata 'Recurvata'
Dryopteris erythrosora
Dryopteris erythrosora var. *prolifera*
Dryopteris filix-mas
Dryopteris filix-mas 'Linearis polydactyla'
Dryopteris gymnosora
Dryopteris lacera
Dryopteris ludoviciana
Dryopteris polylepis
Dryopteris pseudo filix-mas

Dryopteris sieboldii
Dryopteris bissetiana (*D. varia* var. *setosa*)
Dryopteris wallichiana
Equisetum hyemale
Gymnocarpium dryopteris
Gymnocarpium dryopteris 'Plumosum'
Hypolepis rugosula
Lygodium japonicum
Matteuccia struthiopteris (Asian)
Matteuccia struthiopteris (N. American)
Osmunda claytoniana
Osmunda regalis
Pellaea atropurpurea
Phegopteris connectilis (*Thelypteris phegopteris*)
Phegopteris decursive-pinnata (*Thelypteris decursive-pinnata*)
Phegopteris hexagonoptera (*Thelypteris hexagonoptera*)
Phyllitis scolopendrium
Polypodium amorphum
Polypodium scoleri
Polypodium vulgare 'Cornubiense'
Polystichum acrostichoides
Polystichum aculeatum
Polystichum braunii
Polystichum californicum
Polystichum x illyricum
Polystichum lonchitis
Polystichum polyblepharum
Polystichum retroso paleaceum
Polystichum setiferum 'Congestum'
Polystichum setiferum 'Divisilobum'
Polystichum setiferum 'Plumoso multilobum'
Polystichum setiferum 'Rotundatum cristatum'
Polystichum setiferum 'Thompsoniae'
Polystichum sp. (China)
Polystichum mayebarae
Polystichum squarrosus
Polystichum tripteris
Polystichum tsus-simense
Polystichum yaemonse
Selaginella kraussiana
Selaginella moellendorffii
Thelypteris noveboracensis
Woodsia obtusa
Woodwardia areolata
1991 accessions-
Asplenium trichomanes var. *incisum*
Dryopteris bissetiana (*Dryopteris varia* var. *setosa*)
Dryopteris erythrosora var. *prolifera*
Dryopteris formosana
Dryopteris remota
Cheilanthes lanosa
Polystichum dudleyi
Polystichum makinoi
Polystichum neolobatum
Polystichum rigens
Polystichum scopulinum

Dr. Irving Knobloch on Rare Ferns

"In this age of the rapid deterioration of the habitat it seems that when our members decide that a fern or ally is in danger of elimination they should propagate it (or them) put them back in protected areas in countries where they are or were said to occur and water them (if needed) until they take hold..."

"If the Pteridologists don't save the ferns, who will?"

Propagation Hint ...

Deborah Lamb of Miami, FL (*More on this subject in the next issue also.*)

"I've read that if the spore is sown too densely the prothallia never fully develop sexually. This happened to me with a precious flat of spore I'd been growing for over a year. Out of desperation, I pricked out a piece 1/2 the size of your pinkie fingernail and threw it into a blender with a couple of ounces of distilled water. I ran it on puree for a few seconds and then carefully poured this evenly over a new flat of sphagnum. Before long I had a whole new flat of prothallia and they completed their cycle to become sporophytes. I've done this repeatedly now and since the original flat has been thinned out, it has also produced sporophytes."

Tips, comments, observations are welcome, we enjoy hearing from you. Send to Sue Olsen, 2003 128th Ave. SE, Bellevue, WA 98005.

HFF Source List

Plants

Barfod's Hardy Ferns, Torbin Barfod, 23622 Bothell Way, Bothell, WA 98021 (206) 483-0205 Mon.-Sat. 9:00-5:00; Sun. 1:00-5:00

Eco-Gardens, Don Jacobs, P.O. Box 1227, Decatur, GA 30031 (404) 294-6468 Mail Order: Cat. \$1.00 Visitors by appointment.

Fancy Fronds, Judith I. Jones, 1911 4th Ave. W., Seattle, WA 98119 (206) 284-5332 Mail Order: Cat. \$1.00 Visitors by appointment.

Foliage Gardens, Sue Olsen, 2003 128th Ave. S.E., Bellevue, WA 98005 (206) 747-2998 Mail Order: Color Cat. \$2.00 Visitors by appointment

Russell Graham, Purveyor of Plants, 4030 Eagle Crest Rd. N.W., Salem, OR 97304 (503) 362-1135 Mail Order: Cat. \$2.00

MSK Rare Plant Nursery, Mareen S. Kruckeberg, 20066 15th N.W., Seattle, WA 98177 (206) 546-1281 Visitors by appointment

Siskiyow Rare Plant Nursery, Baldassare Mineo, 2825 Cummings Rd., Medford, OR 97501 (503) 772-6846 Mail Order: Color Cat. \$2.00 Visitors by appointment

Varga's Nursery, Barbara Varga, 2631 Pickertown Rd., Warrenton, PA 18976 (215) 343-0646 Mail Order: Cat. \$1.00

We-Du Nurseries, Rene Duval, Rt. 5, Box 724, Marion N.C. 28752 (704) 738-8300 Mail order: Cat. \$2.00 Visitors by appointment

Yerba Buena Nursery, 19500 Skyline Blvd., Woodside, CA 94062 (415) 851-1668. Mail Order: Cat. free

Books

Myron Kinnach, 5598 N. Astell Ave. Azusa, CA 91702

The Ken L. Questor, Kenneth M. Lewis 32255 N. Hwy 99W Newberg, OR 97132

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HARDY FERN FOUNDATION NEWSLETTER

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